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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/526,417

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EXAMINER

BOR, HELENE CATHERINE

ART UNIT

PAPER NUMBER

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/526,417	<b>Applicant(s)</b> SANDRIN ET AL.	
	<b>Examiner</b> HELENE BOR	<b>Art Unit</b> 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 27-53, 55 and 57 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 45-47, 49-53, 55 and 57 is/are rejected.
- 7) ☒ Claim(s) 27-44 and 48 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/22/2008</u>  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/22/2008 has been entered.

### ***Claim Objections***

2. Claim 27 & 45 are objected to because of the following informalities: lacking antecedent basis for “the plane of the image”. Claim 27 suggested correction is “at least one echographic or ultrasonic bar comprising a plurality of transducers configured to produce a planar image.” Claim 45 suggested correction is “in the form of shear waves with an echographic or ultrasonic bar configured to produce a planar image.” Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claim 45-47, 49-54, 55 & 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fink et al. (WO00/55616 English Translation by David Lawson) and in view of Dines et al. (US Patent No. 6,574,499).

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**Claim 45:** Fink teaches a process for measuring elasticity of a human or animal organ, or viscoelastic environments (Page 5, Line 34 - Page 6, Line 2) presenting an ultrasonic signal after ultrasonic illumination and consecutively establishing a representation in two or three dimensions of the elasticity (Page 10, Line 22-23 & Page 16, Line 16-22) by using electronic scanning. Fink teaches generating a low-frequency applied force or signal (Page 8, Line 24-31) with an ultrasonic bar [linear strip] (Page 10, Line 16- 19) and acquiring ultrasonic signals (Page 2, Line 24-28), generating ultrasonic images (Figure 1, Element 4a), calculating tissular speeds (Page 13, Line 8-10), and inverting [apodization] the data by recovering parameters describing the viscoelastic environment (Page 13, Line 11-13). Fink teaches the process, acquiring ultrasonic signals in three different points of elevation [multitude of points] (Page 2, Line 14- 17), based on the direction perpendicular to the plane of the image, to obtain a representation of the measure of the elasticity in two dimensions (2D) or three dimensions (3D) (Page 10, Line 22-23 & Page 16, Line 16-22). Fink does not teach the displacement of a mechanical scanner. However, Dines teaches an ultrasound apparatus which utilizes a mechanical scanner for controlling and sensing the position of the ultrasound scanner (Col. 8, Line 9-12). It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the non-mechanical scanning of Fink with an alternative equivalent expedient, the mechanical scanning, as taught by Dines (Page 15, Line 36 - Page 16, Line 8) to implement the scanning, since it has generally been held to be within the skill level of the art to substitute alternative

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equivalent expedients.

**Claim 46:** Fink teaches the process, wherein the low-frequency applied force or signal has a frequency between 5 Hz and 1000 Hz (Page 8, Line 34-36).

**Claim 47:** Fink teaches the process, further comprising calculating tissular deformation speeds (Page 13, Line 8-10).

**Claim 49:** Fink teaches the process, wherein spatial derivatives of three components of the tissular speed along three directions in space are measured during calculation of the tissular speeds (Page 15, Line 36- Page 16, Line 8). **Claim 50:** Fink teaches the process, wherein acquiring the ultrasonic signals takes place while emitting an impulse with an ultrasonic transducer(s) that is reflected by particles contained in the viscoelastic environment (Page 6, Line 27 -31).

**Claim 51:** Fink teaches the process, wherein acquiring ultrasonic signals is realized at a cadence of  $1/T$  between 100 Hz and 100,000 Hz, where  $T$  is a period between two ultrasonic emissions (Page 12, Line 1-7).

**Claim 52:** Fink teaches the process, wherein acquiring ultrasonic signals is realized at a cadence of  $1/T$  between 100 Hz and 100,000 Hz, where  $T$  is a period between two ultrasonic emissions (Page 12, Line 1-7).

**Claim 53:** Fink does not teach the displacement of a mechanical scanner. However, Dines teaches an ultrasound apparatus which utilizes a mechanical scanner for controlling and sensing the position of the ultrasound scanner (Col. 8, Line 9-12).

**Claim 55:** Fink teaches wherein the scanning focuses three different points of elevation [multitude of points] (Page 2, Line 14-17) using a process selected from the group

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consisting of: a displacement of the echographic or ultrasonic bar, according to a direction perpendicular to the plane of the image, and an electronic modification of the laws of focalization of the echographic or ultrasonic bar (Page 10, Line 16-23 & Page 12, Line 24-28). Fink does not teach the displacement of a mechanical scanner.

However, Dines teaches an ultrasound apparatus which utilizes a mechanical scanner for controlling and sensing the position of the ultrasound scanner (Col. 8, Line 9-12) i It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the non-mechanical scanning of Fink with a alternative equivalent expedient, the mechanical scanning, as taught by Dines (Page 15, Line 36 - Page 16, Line 8) to implement the scanning.

**Claim 57:** Fink teaches the process, further comprising focusing the three different points of elevation [multitude of points] (Page 2, Line 14-17) using a process selected from the group consisting of: displacing the echographic or ultrasonic bar, according to a direction perpendicular to the plane of the image, displacing two echographic or ultrasonic bars, each displaced, and electronically modifying the laws of focalization of the echographic or ultrasonic bar. (Page 10, Line 16-23 & Page 12, Line 24-28). Fink does not teach the displacement of a mechanical scanner. However, Dines teaches an ultrasound apparatus which utilizes a mechanical scanner for controlling and sensing the position of the ultrasound scanner (Col. 8, Line 9-12). It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the non-mechanical scanning of Fink with a alternative equivalent expedient, the mechanical

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scanning, as taught by Dines (Page 15, Line 36 - Page 16, Line 8) to implement the scanning.

***Allowable Subject Matter***

5. Claims 27 - 44 would be allowable if rewritten or amended to overcome the objections set forth in this Office action.

6. Claim 48 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

7. Applicant's arguments, see Page 4, filed 02/25/2008, with respect to Claim 27-44 have been fully considered and are persuasive. The Rejections under U.S.C. 102(b) and U.S.C. 103(a) of Claims 27-44 have been withdrawn.

8. Applicant's arguments filed 02/25/2008, with respect to Claim 45-53, 55 & 57 have been fully considered but they are not persuasive. The Applicant argues that Fink does not acquire ultrasound signals at three different points of elevation based on a direction perpendicular to the plane of the image to obtain a representation of the elasticity of the image in two dimensions or three dimensions. The Examiner respectfully disagrees as Fink discloses in Figure 1, Element 5 three or more points of varying elevation (Page 2, Line 14-20). Further the Applicant argues that Fink does not acquire the points to obtain a measure of elasticity in two or in three dimensions. The Examiner respectfully disagrees as Fink teaches observation of the X,Y & Z wherein the shear wave propagation parameter is calculated (Page 15, Line 36- Page 16, Line 9).

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The Examiner notes, that unlike claim 27-44, claim 45 does not require the determination of the second derivative. Furthermore, only 2D (or 3D) analysis needs to be performed.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELENE BOR whose telephone number is (571)272-2947. The examiner can normally be reached on M-T 8:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. B./  
Examiner, Art Unit 3768

/Eric F Winakur/  
Primary Examiner, Art Unit 3768